

REMARKS

Claims 1-10 are pending in the present application. Claims 1, 3 and 6 are independent. Reconsideration of this application, in view of the following remarks, is respectfully requested.

Rejection Under 35 U.S.C. § 103

Claims 1 and 2 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rankin et al, USPN 5,489,099 in view of Vock et al., USPN 6,320,173. Claims 3, 4 and 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rankin et al. in view of Yokota et al., USPN 5,905,530. Claims 5 and 7-10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rankin et al. in view of Vock et al. and further in view of Yokota et al.

With regard to independent claim 1, this claim is directed to a ball motion measuring apparatus and recites a combination of elements including "a calculating section for carrying out a magnifying process of only a portion of an original image including a ball image, thereby calculating magnified image data." Applicants respectfully submit that the Rankin et al. reference relied on by the Examiner fails to disclose this aspect of the present invention.

In particular, referring to Rankin et al., this reference is directed to an apparatus and method for tracking the flight of a golf ball. Referring to column 3, lines 55-62 of Rankin et

al., it is disclosed that an image controller 27 is used to focus the camera lens on the golf ball and control the zoom or magnification of the camera lens in order to maintain a consistent ball image size within a video frame. In view of this, there is no magnification process of an original image as recited in independent claim 1 of the present invention. In Rankin et al., there is only original image data. The focusing and zooming of the camera lens do not result in magnified image data, but result in original image data that is focused and closer to the ball than if the zoom feature was not included. Since the Rankin et al. reference only discloses original image data, Applicants submit that the Rankin et al. reference fails to disclose the recitation "a calculating section for carrying out a magnifying process of only a portion of an original image including the ball image, thereby calculating magnified image data" in independent claim 1 of the present invention.

With regard to the Examiner's reliance on the Vock et al. reference, this reference has only been relied on to modify Rankin et al. to include a CCD camera. Since Vock et al. fails to disclose magnifying original image data to calculate magnified image data, Applicants submit that Vock et al. fails to make up for the deficiencies of Rankin et al.

With regard to independent claims 3 and 6, the Examiner recognizes that the Rankin et al. reference fails to disclose a calculating section for correcting a coordinate error as recited in independent claims 3 and 6 of the present invention. However, the Examiner relies on the Yokota et al. reference in order to modify Rankin et al. to arrive at the presently claimed invention. Applicants submit that the Yokota et al. reference fails to

make up for the deficiencies of Rankin et al. Referring to Yokota et al., this reference discloses an image pickup apparatus that corrects distortion of an image due to an objective lens. However, the Yokota et al. reference is not directed to a camera which is used for measuring ball motion as recited in independent claims 3 and 6 of the present invention. In view of this, there is no indication in Yokota et al. that a coordinate error is calculated for only an object (ball image) in an original image as recited in claims 3 and 6. In addition, there is no indication in Yokota et al. that this correction data is used to calculate "true coordinates" of the object (ball image) in the original image as recited in independent claims 3 and 6.

With specific regard to independent claim 6, the Examiner asserts that this claim is similar to claim 3 and therefore is also rejected in view of the Rankin et al. and Yokota et al. references. However, independent claim 6 recites that the calculating section corrects a coordinate error of only a ball image in the original image "made by a shift of a direction of the ball image from a direction of an optical axis of the CCD camera." The Examiner has not pointed out where in the Yokota et al. reference this aspect of the present invention is allegedly disclosed. In view of this, in addition to the above deficiencies of Yokota et al., Applicants submit that this reference also fails to disclose calculating a coordinate error due to a shift of a direction of the ball image from a direction of the optical axis of the CCD camera as recited in claim 6.

In view of the above amendments and remarks, Applicants respectfully submit that claims 1-10 clearly define the present invention over the references relied on by the Examiner. Accordingly, reconsideration and withdrawal of the Examiner's rejections under 35 U.S.C. § 103 are respectfully requested.

CONCLUSION

All the stated grounds of rejection have been properly traversed and/or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently pending rejections and that they be withdrawn.


It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact Paul C. Lewis, Registration No. 43,368 at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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